

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for determining a state-of-charge of a battery, ~~characterized in that comprising the steps of~~ evaluating a transition frequency (f_{\pm}) of an impedance (Z) ~~is evaluated~~ for a battery (40), which is excited by an alternating current, and assigning the transition frequency (f_{\pm}) ~~is assigned~~ to the state-of-charge of the battery (40), ~~whereby wherein~~ the transition frequency (f_{\pm}) is a frequency of the alternating current at which the imaginary part (Z'') of the impedance (Z) of the battery (40) vanishes.

2. (Currently amended) The method according to Claim 1, ~~characterized in that comprising exciting~~ the battery (40) ~~is excited~~ by noise signals which are generated by the loads (10) in the a power net which comprises the battery (40), and/or by an alternating current source (20) contained in the power net.

3. (Currently amended) The method according to ~~one or both of Claims claim 1 and 2,~~ characterized in that comprising measuring the alternating voltage drop at the battery (40) ~~is measured~~.

4. (Currently amended) The method according to ~~one or more of the preceding Claims,~~ characterized in that Claim 1, comprising measuring the intensity of the alternating current flowing through the battery (40) ~~is measured~~.

5. (Currently amended) The method according to ~~one or more of the preceding Claims,~~ characterized in that Claim 1, comprising determining a phase difference between a phase of an alternating voltage and a phase of alternating current ~~is determined~~.

6. (Currently amended) The method according to ~~one or more of the preceding Claims,~~ characterized in that Claim 1, comprising determining the transition frequency (f_{\pm}) of the alternating current, at which the phase difference between the phase of the alternating voltage and the phase of the alternating current vanishes, ~~is determined~~.

7. (Currently amended) The method according to ~~one or more of the preceding Claims,~~ characterized in that Claim 1, comprising determining the complex impedance (Z) of the battery (40) ~~is determined~~.

8. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ Claim 1, comprising determining the frequency (f_{\pm}) of the alternating current, at which an imaginary part of the complex impedance (Z) vanishes, is determined.

9. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ Claim 1, comprising varying a frequency (f) of the alternating current, exciting the battery (40), ~~is varied~~.

10. (Currently amended) The method according to ~~one or more of the preceding Claims characterized in that an operating temperature of the battery (40) is taken into consideration in~~ Claim 1, wherein the assignment of the transition frequency (f_{\pm}) to the state-of-charge (SOC) is a function of the operating temperature of the battery.

11. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that an intensity of a direct current flowing through the battery (40) is taken into consideration in~~ Claim 1, wherein the assignment of the transition frequency (f_{\pm}) to the state-of-charge (SOC) is a function of an intensity of a direct current flowing through the battery.

12. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that an aging status of the battery (40) is taken into consideration in~~ Claim 1, wherein the assignment of the transition frequency (f_{\pm}) to the state-of-charge (SOC) is a function of the aging status of the battery.

13. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ Claim 1, comprising determining an aging status of the battery (40) ~~is determined~~.

14. (Currently amended) A device for determining a state-of-charge of a battery, ~~characterized in that it comprises~~ comprising a means an element for the determination of determining a transition frequency (f_{\pm}) of an impedance (Z) of a battery (40), which is excited by an alternating current, and a calculation unit (120) for the ~~assignment of~~ assigning the transition frequency (f_{\pm}) to the state-of-charge of the battery (40),

where the transition frequency (f_{\pm}) is a frequency of the alternating current at which the imaginary part (Z'') of the impedance (Z) of the battery (40) vanishes.

15. (Currently amended) The device according to Claim 14, ~~characterized in that it comprises~~ comprising a variable alternating current source (30).

16. (Currently amended) The device according to ~~one or both Claims 14 and 15~~ characterized in that Claim 14, wherein the means element for the ~~determination~~ determining of the transition frequency (f_{\pm}) comprises a sensor (50) for the measurement of an alternating voltage drop at the battery (40).

17. (Currently amended) The device according to ~~one or more of Claims 14 to 16~~, characterized in that Claim 14, wherein the means element for the ~~determination~~ determining of the transition frequency (f_{\pm}) comprises a sensor (50) for the measurement of the intensity of an alternating current flowing through the battery (40).

18. (Currently amended) The device according to ~~one or more of Claims 14 to 17~~, characterized in that Claim 14, wherein the means element for the ~~determination~~ determining of the transition frequency (f_{\pm}) comprises at least a variable frequency filter (80, 90, 150) for filtering the measured current and voltage signals.

19. (Currently amended) The device according to ~~one or more of Claims 14 to 18~~, characterized in that Claim 14, wherein the means element for the ~~determination~~ determining of the transition frequency (f_{\pm}) comprises a phase comparator (100), which determines the phase difference between the filtered current and voltage signals.

20. (Currently amended) The device according to ~~one or more of Claims 14 to 19~~, characterized in that wherein the means element for the ~~determination~~ determining of the transition frequency (f_{\pm}) comprises a control unit (110), which scrutinizes the phase difference and modifies a transmitted frequency of the frequency filter (80, 90) and/or a frequency of the alternating current source (30), till the phase difference is null.

21. (Currently amended) The device according to ~~one or more of Claims 14 to 20~~, characterized in that the means element for the ~~determination~~ determining of the

transition frequency (f_{\pm}) comprises a ~~means (160)~~ unit for the Fourier Transformation of the measured current and voltage signals.

22. (Currently amended) The device according to ~~one or more of Claims 14 to 21, characterized in that~~ Claim 14, wherein the ~~means element~~ for the determination ~~determining~~ of the transition frequency (f_{\pm}) comprises an analysis unit (170) for ~~analysing~~ analyzing the transformed signals and determining a frequency for which an imaginary part (Z'') of an impedance (Z) of the battery (40) vanishes.

23. (Currently amended) The device according to ~~one or more of Claims 14 to 22, characterized in that it comprises~~ Claim 14, comprising a sensor (70) for measuring an operating temperature of the battery (40).

24. (Currently amended) The device according to ~~one or more of Claims 14 to 23, characterized in that it comprises~~ Claim 14, comprising a sensor (60) for measuring the intensity of a direct current flowing through the battery (40).

25. (Currently amended) The device according to ~~one or more of Claims 14 to 24, characterized in that~~ Claim 14, wherein the calculation unit (120) comprises calculation specifications for ~~the assignment of~~ assigning the transition frequency (f_{\pm}) to the state-of-charge of the battery (40) for several operating temperatures of the battery (40).

26. (Currently amended) The device according to ~~one or more of Claims 14 to 25, characterized in that~~ Claim 14, wherein the calculation unit (120) comprises calculation specifications for ~~the assignment of~~ assigning the transition frequency (f_{\pm}) to the state-of-charge of the battery (40) for several intensities of the direct current flowing through the battery (40).

27. (Currently amended) The device according to ~~one or more of Claims 14 to 26, characterized in that~~ Claim 14, wherein the calculation unit (120) comprises calculation specifications for ~~the assignment of~~ assigning the transition frequency (f_{\pm}) to the state-of-charge of the battery (40) for several aging status of the battery (40).

28. (Currently amended) The device according to ~~one or more of Claims 14 to 27, characterized in that it comprises~~ Claim 14, comprising a display device (130) for displaying the state-of-charge (SOC) of the battery.